AN ACCESS INDEPENDENT COMMON ARCHITECTURE FOR REAL-TIME
COMMUNICATIONS SERVICES FOR NETWORKING ENVIRONMENTS
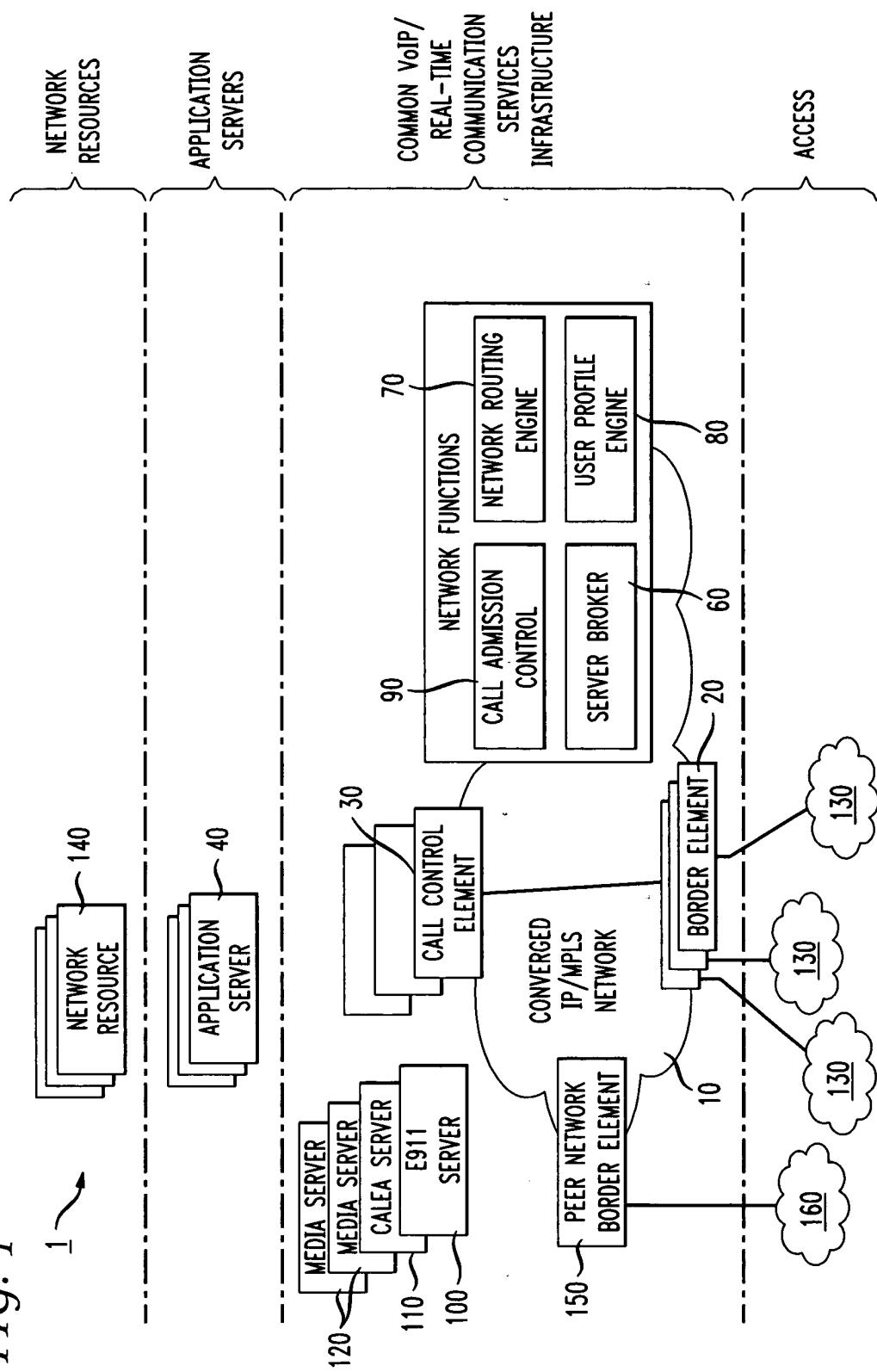Radhika R. Roy, et al.
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FIG. 1

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FIG. 2

RESOURCE LAYER

APPLICATION LAYER

CONNECTIVITY LAYER

CORE NETWORK LAYER

ACCESS LAYER

NETWORK RESOURCE — 140

SERVICE CREATION ENVIRONMENT

XML,CPL,SERVLETS

SLEE

APP LOGIC   APP LOGIC

VXML & HTTP

APPLICATION SERVER — 40

CALL CONTROL ELEMENT — 30

MEDIA SERVER — 120

E-911 SERVER — 100

CALEA SERVER — 110

PEER NETWORK BORDER ELEMENT — 150

PEER IP NETWORK

COMMON NETWORK FUNCTIONS — 70

NETWORK ROUTING ENGINE

USER PROFILE ENGINE — 80

CALL ADMISSION CONTROL — 90

SERVER BROKER — 60

H-323 BE — 20

SIP BE

MEGACO BE

NETWORK GATEWAY BE — 20

CONVERGED IP/MPLS NETWORK 10

H.323   MANAGED GATEWAY   PBX

H.323   GATEWAY/ROUTER   LAN   IP PBX

IP PHONE

H.323   PARTNER IP CARRIER

CUSTOMER MANAGED GW   PBX

SIP   SIP

SIP   GATEWAY/ROUTER   LAN   IP PBX

IP DEVICE

SIP   DSL/CABLE   TA/MTA

MEGACO
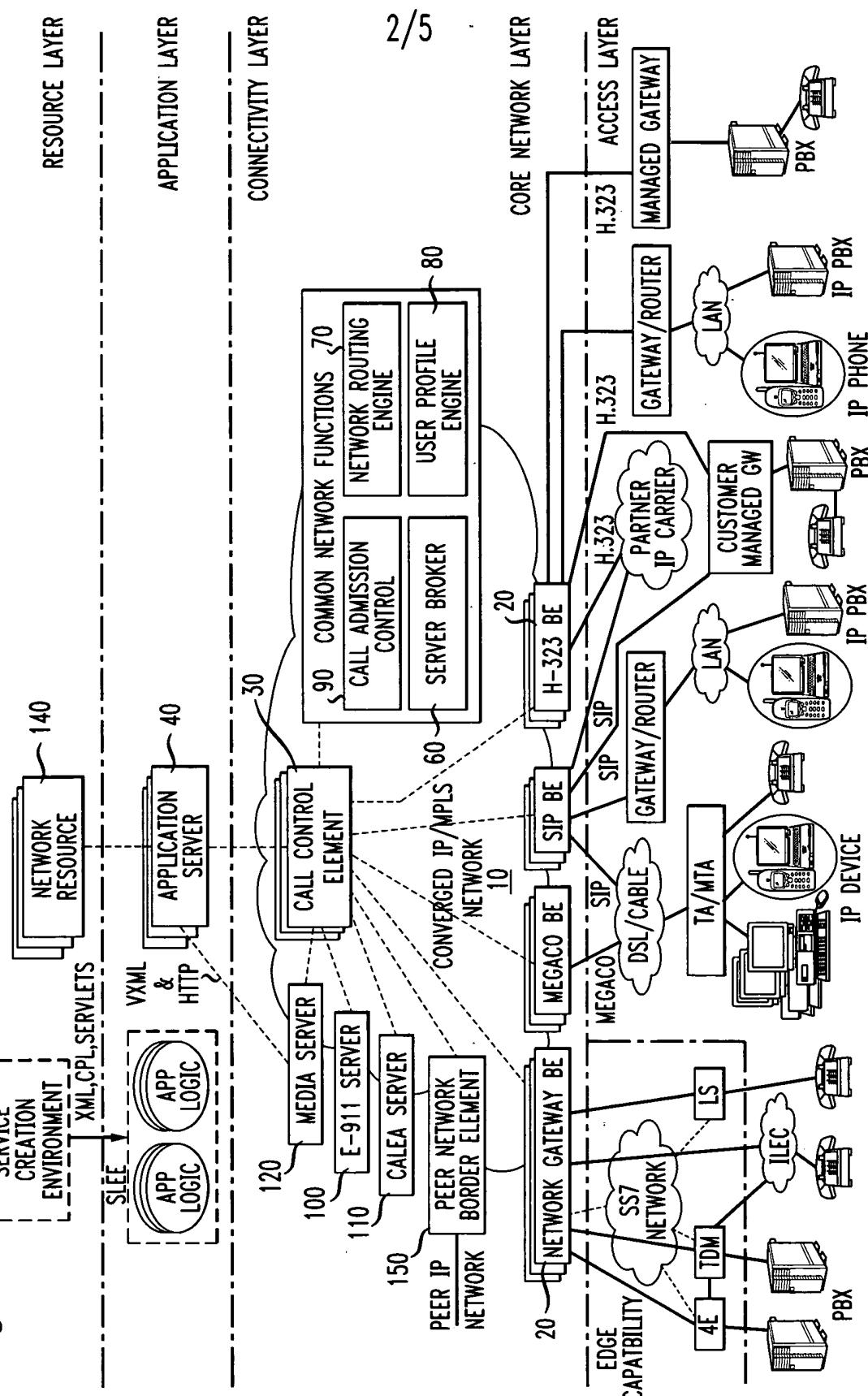
SS7 NETWORK   LS   ILEC

TDM

4E   PBX

EDGE CAPABILITY

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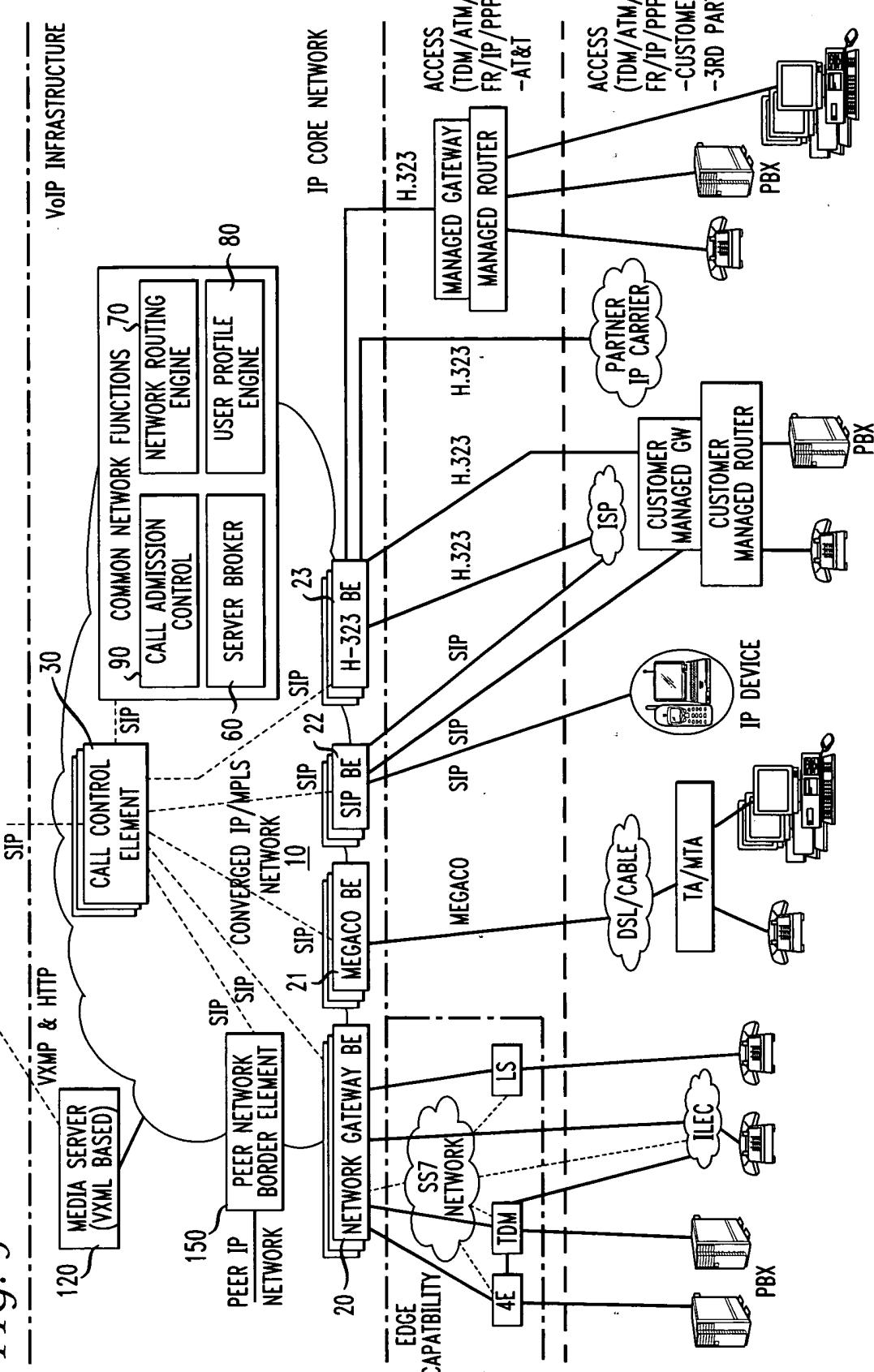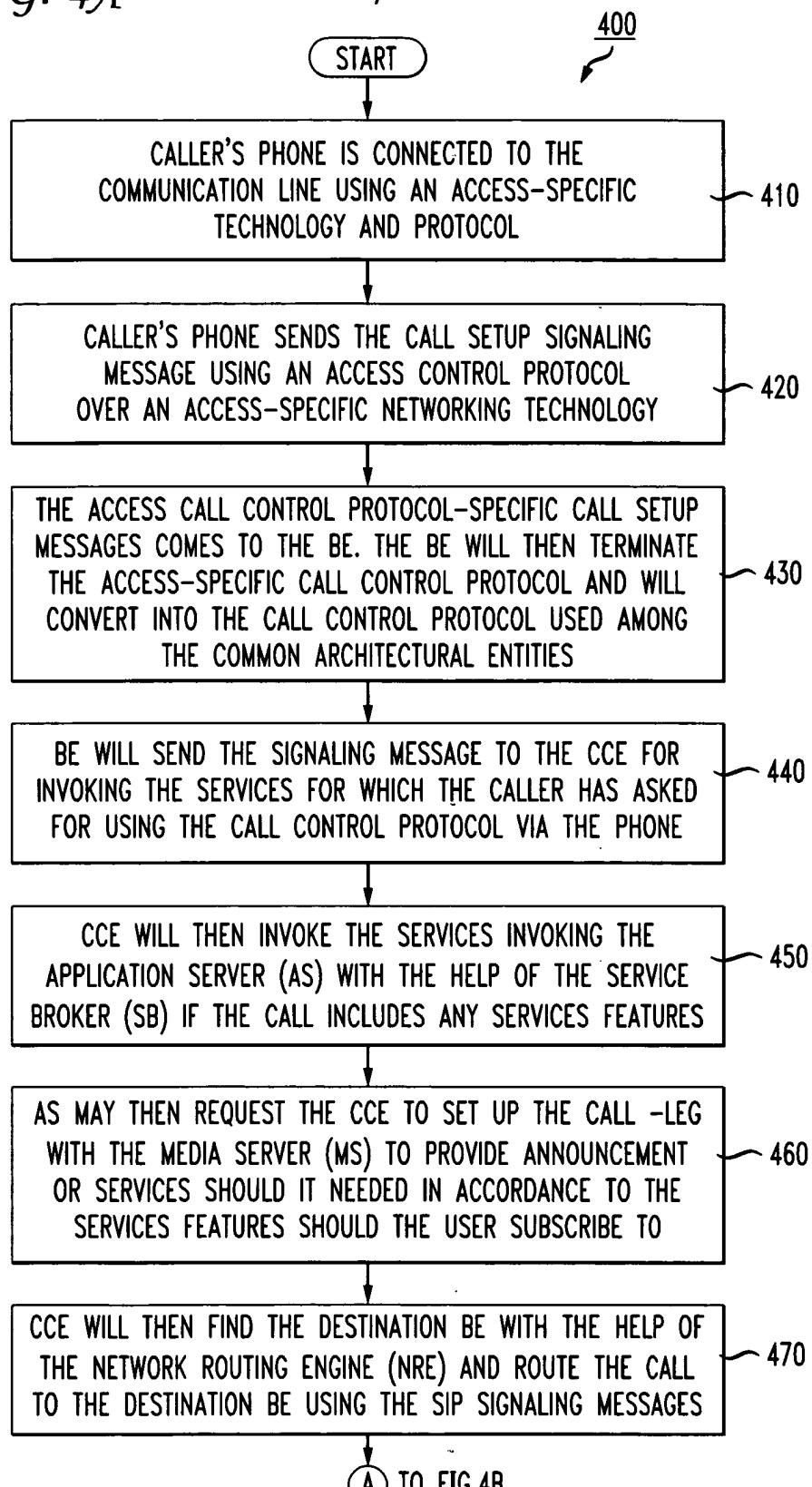Application No.: 10/748,707

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FIG. 3

FIG. 4A   4/5

START

400

CALLER'S PHONE IS CONNECTED TO THE
COMMUNICATION LINE USING AN ACCESS-SPECIFIC
TECHNOLOGY AND PROTOCOL — 410

CALLER'S PHONE SENDS THE CALL SETUP SIGNALING
MESSAGE USING AN ACCESS CONTROL PROTOCOL
OVER AN ACCESS-SPECIFIC NETWORKING TECHNOLOGY — 420

THE ACCESS CALL CONTROL PROTOCOL-SPECIFIC CALL SETUP
MESSAGES COMES TO THE BE. THE BE WILL THEN TERMINATE
THE ACCESS-SPECIFIC CALL CONTROL PROTOCOL AND WILL
CONVERT INTO THE CALL CONTROL PROTOCOL USED AMONG
THE COMMON ARCHITECTURAL ENTITIES — 430

BE WILL SEND THE SIGNALING MESSAGE TO THE CCE FOR
INVOKING THE SERVICES FOR WHICH THE CALLER HAS ASKED
FOR USING THE CALL CONTROL PROTOCOL VIA THE PHONE — 440

CCE WILL THEN INVOKE THE SERVICES INVOKING THE
APPLICATION SERVER (AS) WITH THE HELP OF THE SERVICE
BROKER (SB) IF THE CALL INCLUDES ANY SERVICES FEATURES — 450

AS MAY THEN REQUEST THE CCE TO SET UP THE CALL -LEG
WITH THE MEDIA SERVER (MS) TO PROVIDE ANNOUNCEMENT
OR SERVICES SHOULD IT NEEDED IN ACCORDANCE TO THE
SERVICES FEATURES SHOULD THE USER SUBSCRIBE TO — 460

CCE WILL THEN FIND THE DESTINATION BE WITH THE HELP OF
THE NETWORK ROUTING ENGINE (NRE) AND ROUTE THE CALL
TO THE DESTINATION BE USING THE SIP SIGNALING MESSAGES — 470

(A) TO FIG.4B

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FIG. 4B

FROM FIG.4A

A

THE BE WILL THEN TERMINATE THE SIP CALL CONTROL PROTOCOL AND WILL CONVERT INTO THE ACCESS-SPECIFIC CALL CONTROL PROTOCOL ⎯ 480

THE DESTINATION USER WILL REPLY BACK TO THE CALLER ⎯ 490

THE CALLER WILL ACKNOWLEDGE CALLEE'S RESPONSE AND THE CALL WILL BE SETUP BETWEEN THE CALLER AND THE CALLEE ⎯ 500

WHEN CALLER OR CALLEE WILL TERMINATE THE CALL, THE CALL WILL BE TERMINATED BY THE BEs AND CCE ⎯ 510

END